

Amendment Under 37 C.F.R. § 1.111  
Serial No.: 10/782,958  
SUGHRUE MION, PLLC Ref: Q79874

### **AMENDMENTS TO THE CLAIMS**

**This listing of claims will replace all prior versions and listings of claims in the application:**

#### **LISTING OF CLAIMS:**

Claims 1-8: (canceled).

Claim 9 (withdrawn): A process for producing a retardation film, comprising irradiating a film formed of a photosensitive polymer or a mixture of a photosensitive polymer and a low molecular weight compound with light with the incident angle changing in sequence.

Claim 10 (withdrawn): The process for producing a retardation film according to Claim 9, wherein the light to be irradiated in said step of irradiation is irradiated on both of opposite principal surfaces of said mixture with the incident angle changing in sequence.

Claim 11 (withdrawn): The process for producing a retardation film according to Claim 9, the process further comprising a step of heating and/or cooling said layer after said step of irradiation.

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Claim 12 (withdrawn):        The process for producing a retardation film according to Claim 9, the process further comprising a step of crosslinking said photosensitive polymer or said photosensitive polymer and said low molecular weight compound.

Claim 13 (withdrawn):        The process for producing a retardation film according to Claim 9, wherein said photosensitive polymer has liquid-crystallinity.

Claim 14 (withdrawn):        The process for producing a retardation film according to Claim 9, wherein said low molecular weight compound has crystallinity or liquid-crystallinity.

Claim 15 (withdrawn):        A retardation film produced by the process as claimed in Claim 9.

Claim 16 (withdrawn):        The retardation film according to Claim 15, the film further comprising a uniaxial index ellipsoid layer or/and a biaxial index ellipsoid layer to be added.

Claim 17 (currently amended):        A process for producing a retardation film, the process comprising irradiating a layer formed of a photosensitive polymer or a mixture of a photosensitive polymer and a low molecular weight compound with linear polarized lights having electric field oscillation planes differing from each other in at least two directions, wherein the light to be irradiated in at least one direction is irradiated in a direction oblique to the

normal line of said layer and the ratio  $z$  of solubility parameters calculated from the evaporation energy and molecular volume of the photosensitive polymer and low molecular weight compound is larger than 0.93 and smaller than 1.06.

Claim 18 (original): The process for producing a retardation film according to Claim 17, wherein said process of irradiation includes a sub-step of irradiating the layer with linear polarized light in a direction oblique to the normal line of said layer and a sub-step of irradiating the layer with light having electric field oscillation plane on the same plane as that of said light in the normal direction of the layer.

Claim 19 (original): The process for producing a retardation film according to Claim 17, wherein said process of irradiation includes a sub-step of irradiating the layer with linear polarized light in a direction oblique to the normal line of said layer and a sub-step of irradiating the layer with linear polarized light having electric field oscillation plane orthogonal to that of said light in the normal direction of the layer.

Claim 20 (original): The process for producing a retardation film according to Claim 17, wherein said process of irradiation includes a step of irradiating said layer with linear polarized lights having electric field oscillation planes orthogonal to each other in two directions oblique to the direction of the normal line of the layer.

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Claim 21 (original): The process for producing a retardation film according to Claim 17, wherein the irradiation of the layer in the process of irradiation is conducted on both of opposite principal surfaces of the layer.

Claim 22 (original): The process for producing a retardation film according to Claim 17, the process further comprising a step of heating and/or cooling said layer after said step of irradiation.

Claim 23 (original): The process for producing a retardation film according to Claim 17, the process further comprising a step of crosslinking said photosensitive polymer or said photosensitive polymer and said low molecular weight compound.

Claim 24 (original): The process for producing a retardation film according to Claim 17, wherein said photosensitive polymer has liquid-crystallinity.

Claim 25 (original): A retardation film comprising a layer produced by the process as claimed in Claim 17 formed of a photosensitive polymer or a mixture of a photosensitive polymer and a low molecular weight compound which is irradiated with linear polarized lights having electric field oscillation planes differing from each other in at least two directions, wherein the light to be irradiated in at least one direction is irradiated in a direction oblique to the normal line of said layer and the ratio  $z$  of solubility parameters calculated from the evaporation energy and

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molecular volume of the photosensitive polymer and low molecular weight compound is larger than 0.93 and smaller than 1.06.

Claim 26 (currently amended): The retardation film according to Claim ~~19~~25, the film further ~~comprising adding~~comprises a uniaxial index ellipsoid layer or/and a biaxial index ellipsoid layer.

Claim 27 (currently amended): The retardation film according to Claim ~~19~~25, wherein the retardation film comprises two or more irradiated layers which are laminated in such an arrangement that the optical anisotropic axes of these layers are orthogonal to each other.

Claim 28 (currently amended): The retardation film according to Claim ~~19~~25, wherein said retardation film has the same optical characteristics equal to those of one in which a negative index ellipsoid is inclined.

Claim 29 (withdrawn): A process for producing a retardation film, comprising a process of irradiating a layer made of a photosensitive polymer containing a positive index ellipsoid structure or a mixture of the polymer and a low molecular weight compound with non-polarized light or light including a perfectly polarized light component and a non-polarized light component, to control birefringence.

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Claim 30 (withdrawn):        The process for producing a retardation film according to Claim 29, wherein the ratio of three primary refractive indexes  $n_x$ ,  $n_y$  and  $n_z$  of the index ellipsoid in the film and the inclination of the  $n_x$  axis with the normal line of the film surface are controlled by said process of irradiation.

Claim 31 (withdrawn):        The process for producing a retardation film according to Claim 29, wherein the term “control” is, specifically, to develop the same birefringence as in the case of combining a slant-oriented index ellipsoid, bend-oriented index ellipsoid or non-slanted uniaxial index ellipsoid.

Claim 32 (withdrawn):        The process for producing a retardation film according to Claim 29, the process further comprising a step of heating and/or cooling said layer after said process of irradiation.

Claim 33 (withdrawn):        The process for producing a retardation film according to Claim 29, wherein the irradiation with light in said process of irradiation is conducted on both of opposite principal surfaces of said layer.

Claim 34 (withdrawn):        The process for producing a retardation film according to Claim 29, wherein the irradiation with light in said process of irradiation is conducted in the direction inclined with the direction of the normal line of said layer.

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Claim 35 (withdrawn):        The process for producing a retardation film according to  
Claim 29, wherein said photosensitive polymer has liquid-crystallinity.

Claim 36 (withdrawn):        The process for producing a retardation film according to  
Claim 29, wherein said low molecular weight compound has crystallinity or liquid-crystallinity.

Claim 37 (withdrawn):        The process for producing a retardation film according to  
Claim 29, wherein said low molecular weight compound has a reactive group which is  
crosslinked or polymerized by light or heat.

Claim 38 (withdrawn):        The process for producing a retardation film according to  
Claim 29, the process further comprising a step of crosslinking said photosensitive polymer  
and/or said low molecular weight compound.

Claim 39 (withdrawn):        A retardation film produced by the process as claimed in  
Claim 29.